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Chang et al.

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(54) **MODULARIZED SERVER**

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(30) **Foreign Application Priority Data**

Aug. 25, 2016 (TW) ..... 105127209 A

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H05K 7/18 (2006.01)

(52) **U.S. Cl.**
CPC ***H05K 7/1489*** (2013.01); ***H05K 7/1455*** (2013.01); ***H05K 7/1487*** (2013.01); ***H05K 7/1492*** (2013.01); ***H05K 7/183*** (2013.01)

(58) **Field of Classification Search**
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USPC 361/727, 679.43, 679.31, 679.39, 679.58, 361/679.02
See application file for complete search history.

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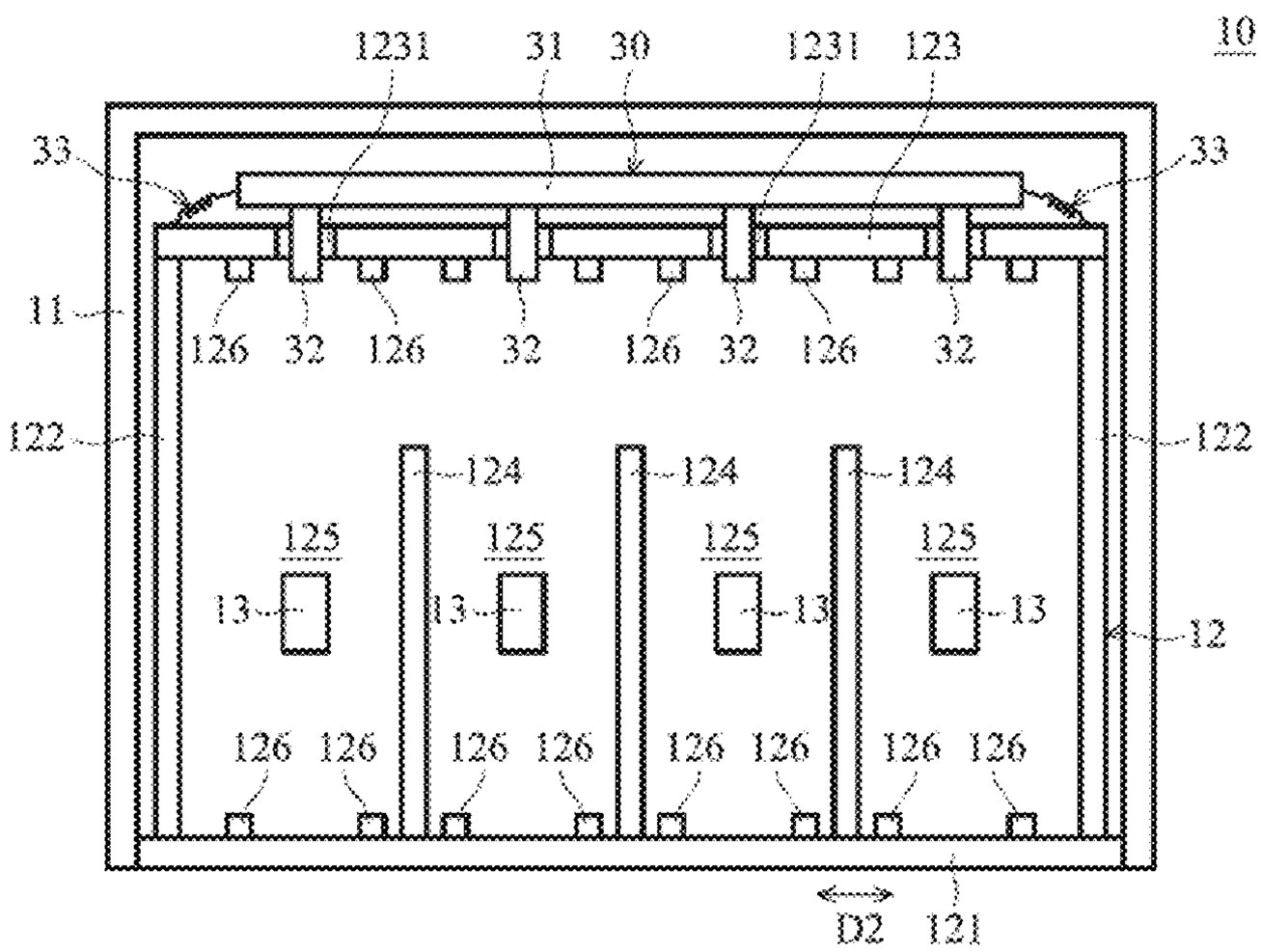
(57) **ABSTRACT**

A modularized server comprises a rack, a switching mechanism, and a removable electronic device. The rack comprises a first slot and a second slot. The switching mechanism is disposed on the rack. When the removable electronic device is inserted into the first slot, the removable electronic device is operable to drive the switching mechanism to a switching position. The switching mechanism at the switching position can stop another removable electronic device different from a specific design of the removable electronic device from being inserted into the second slot.

10 Claims, 13 Drawing Sheets



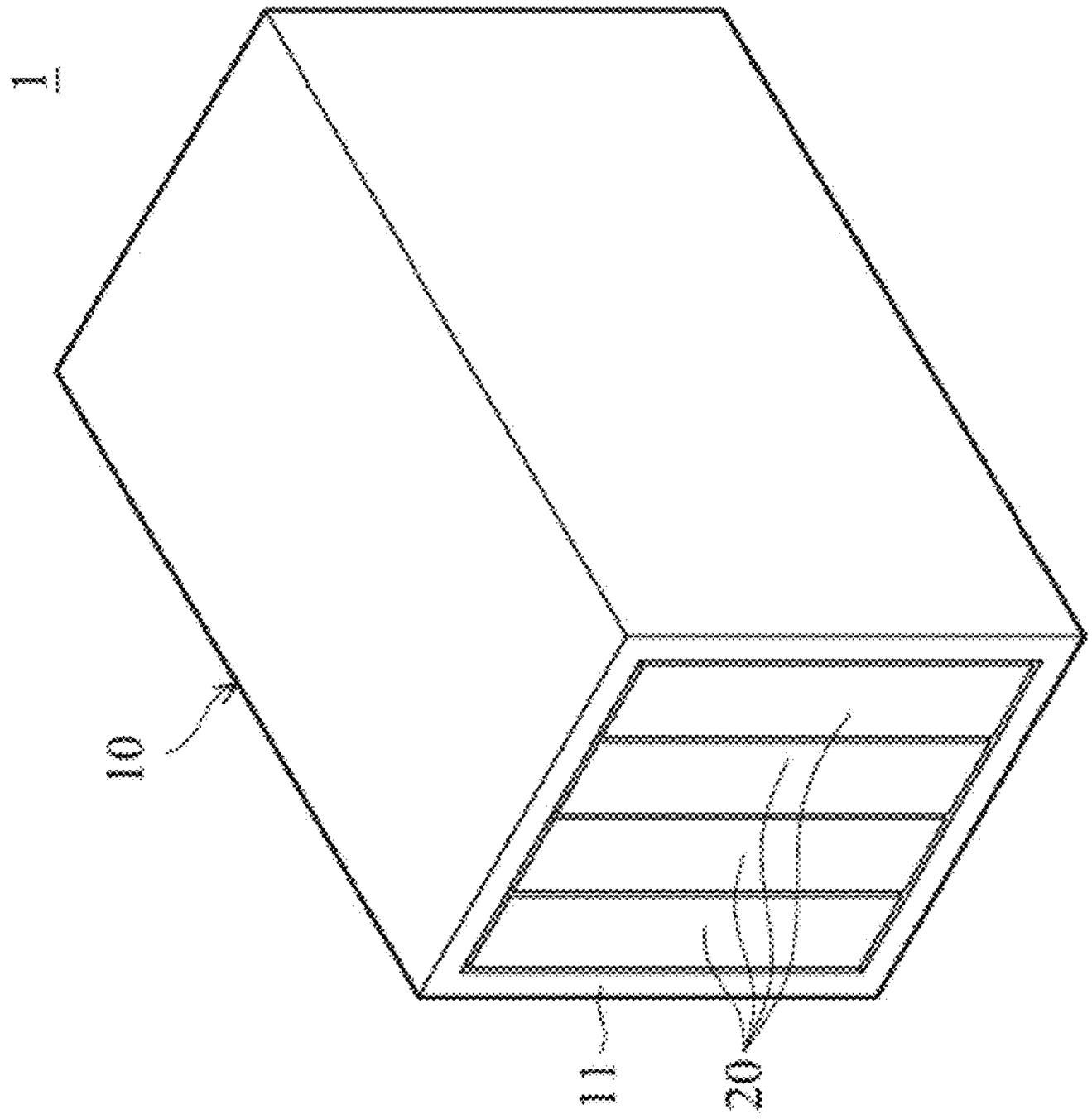


FIG. 1

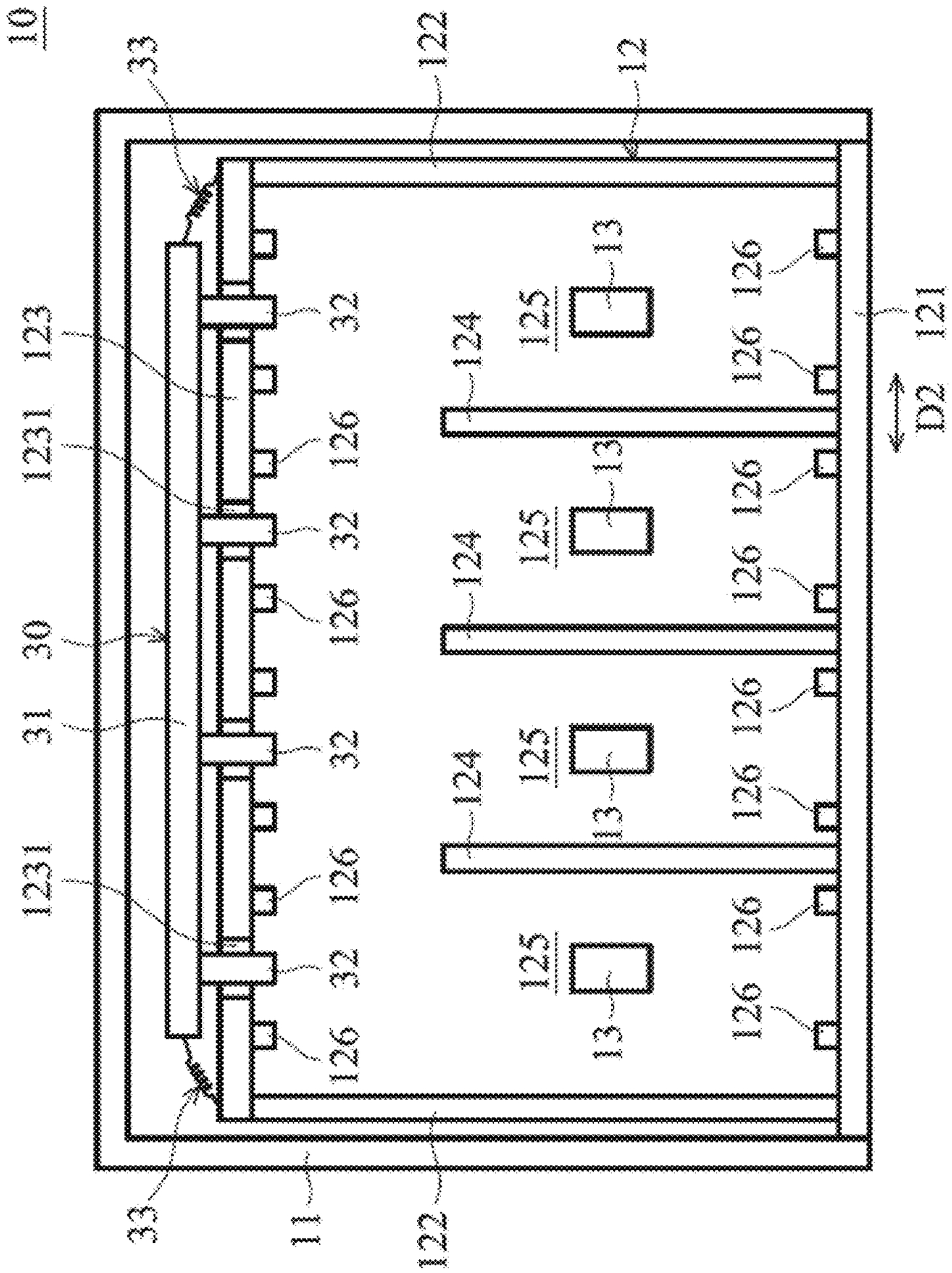


FIG. 2

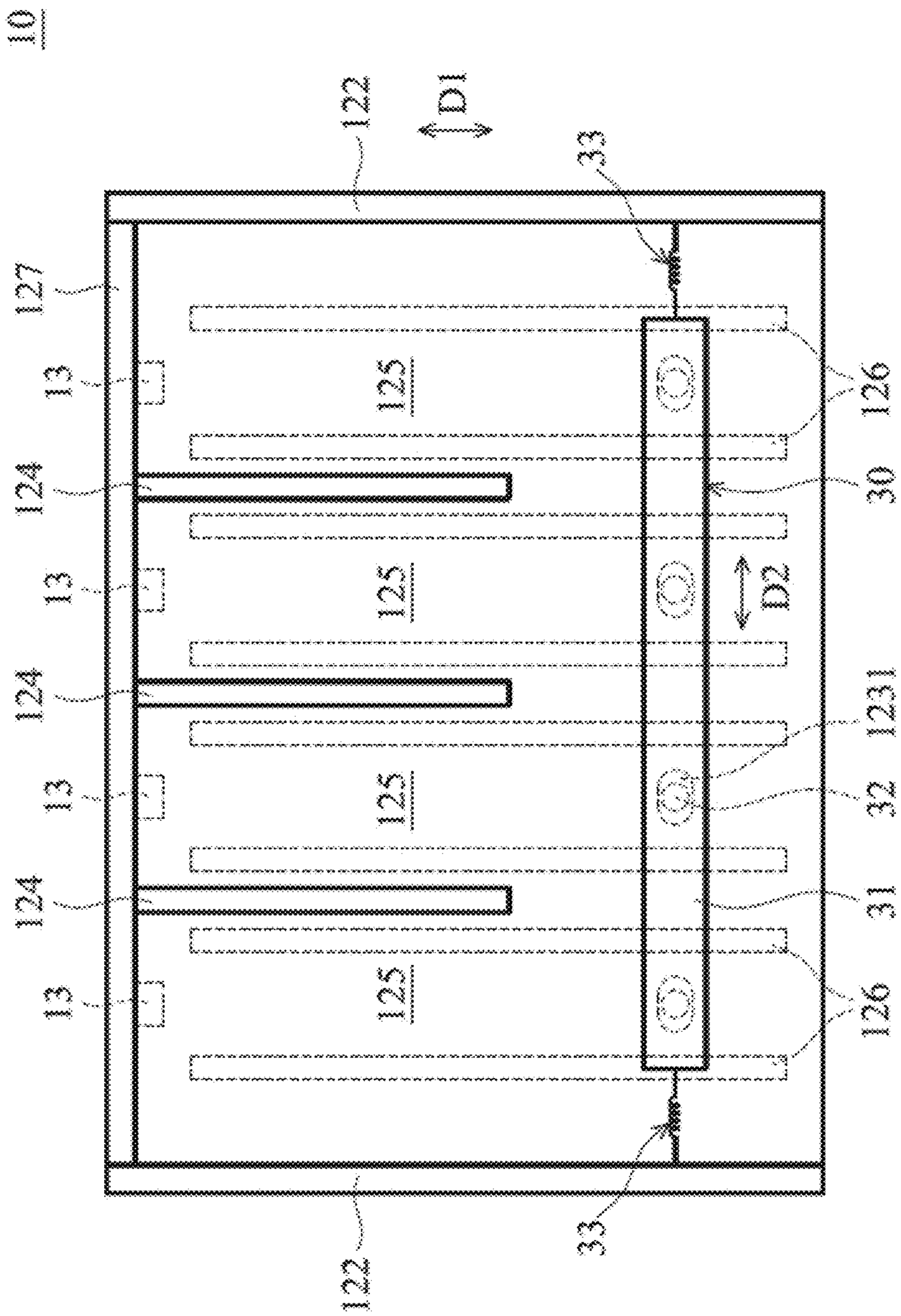


FIG. 3

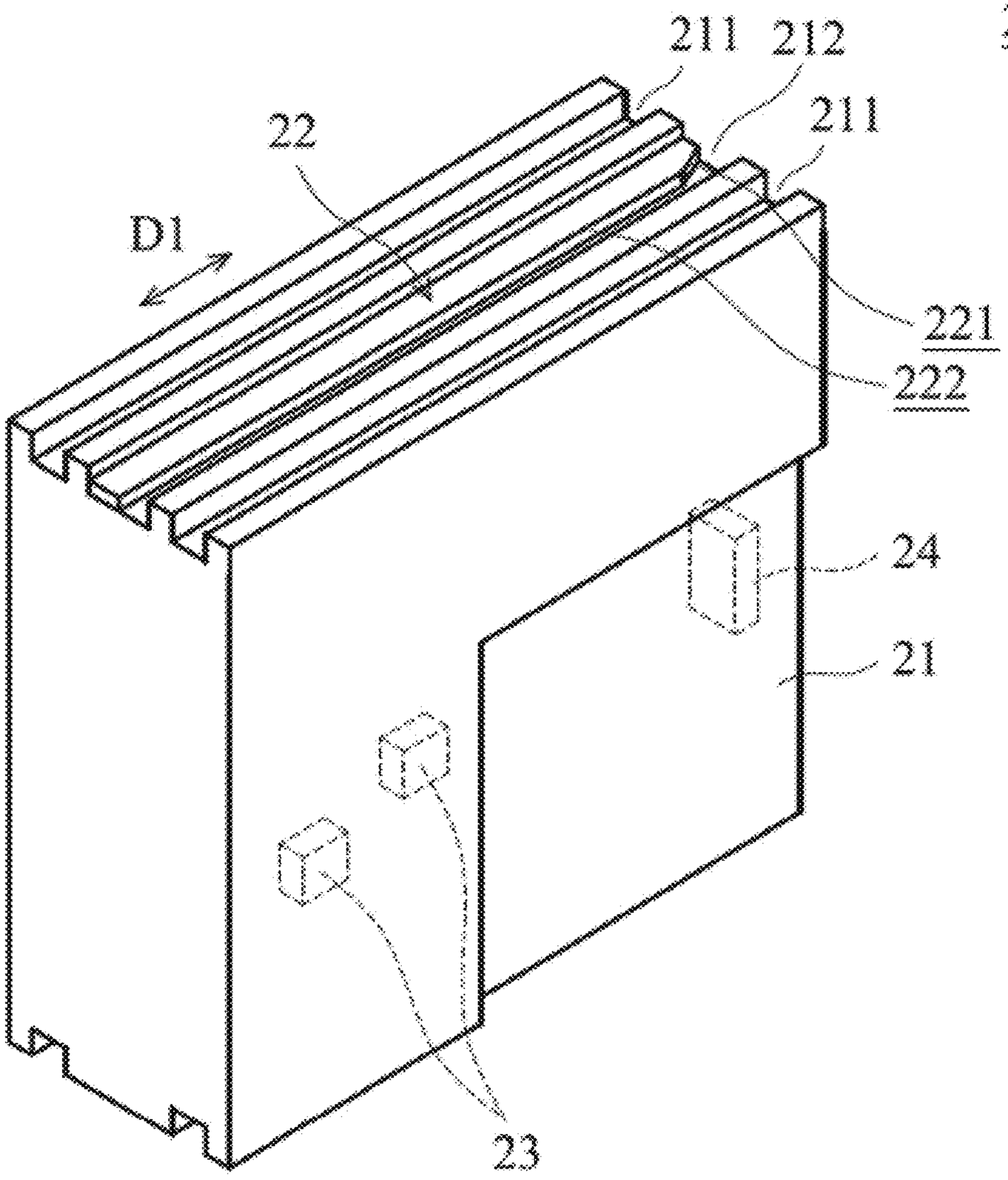


FIG. 4

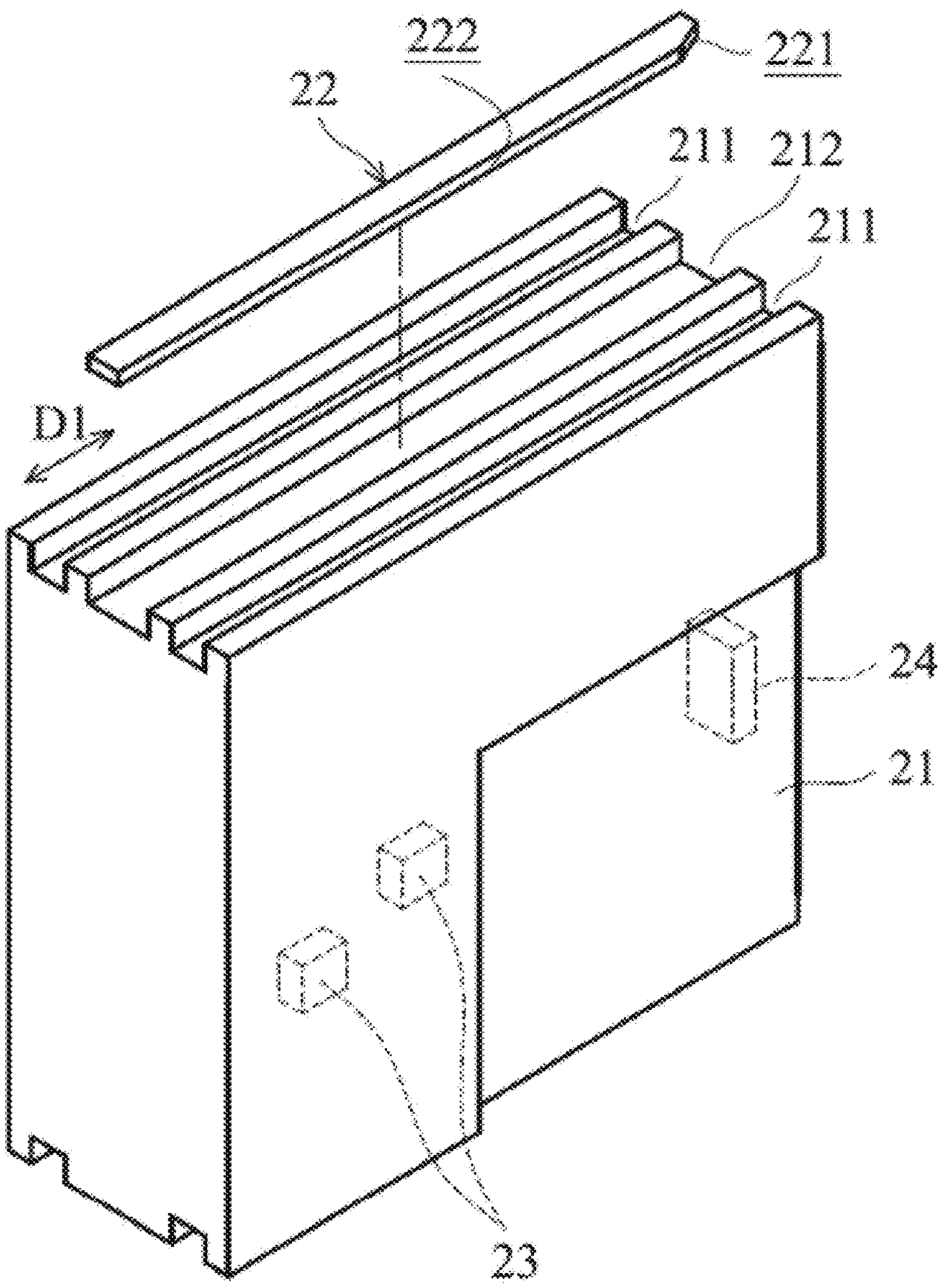


FIG. 5

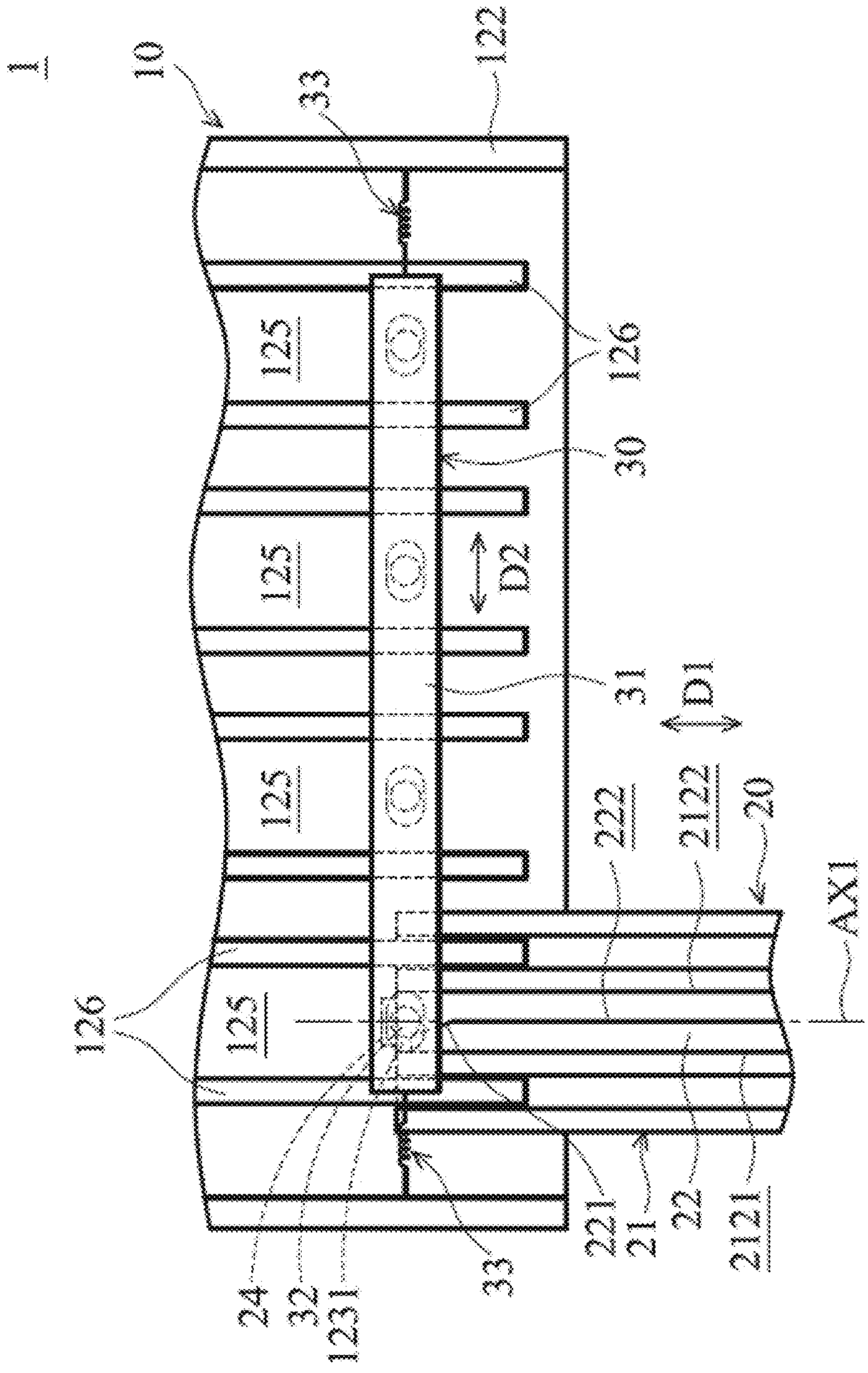

1
10
33
122
125
126
30
D2
31
D1
222
2122
20
AX1
125
126
24
32
231
33
221
21
22
2121

FIG. 6A

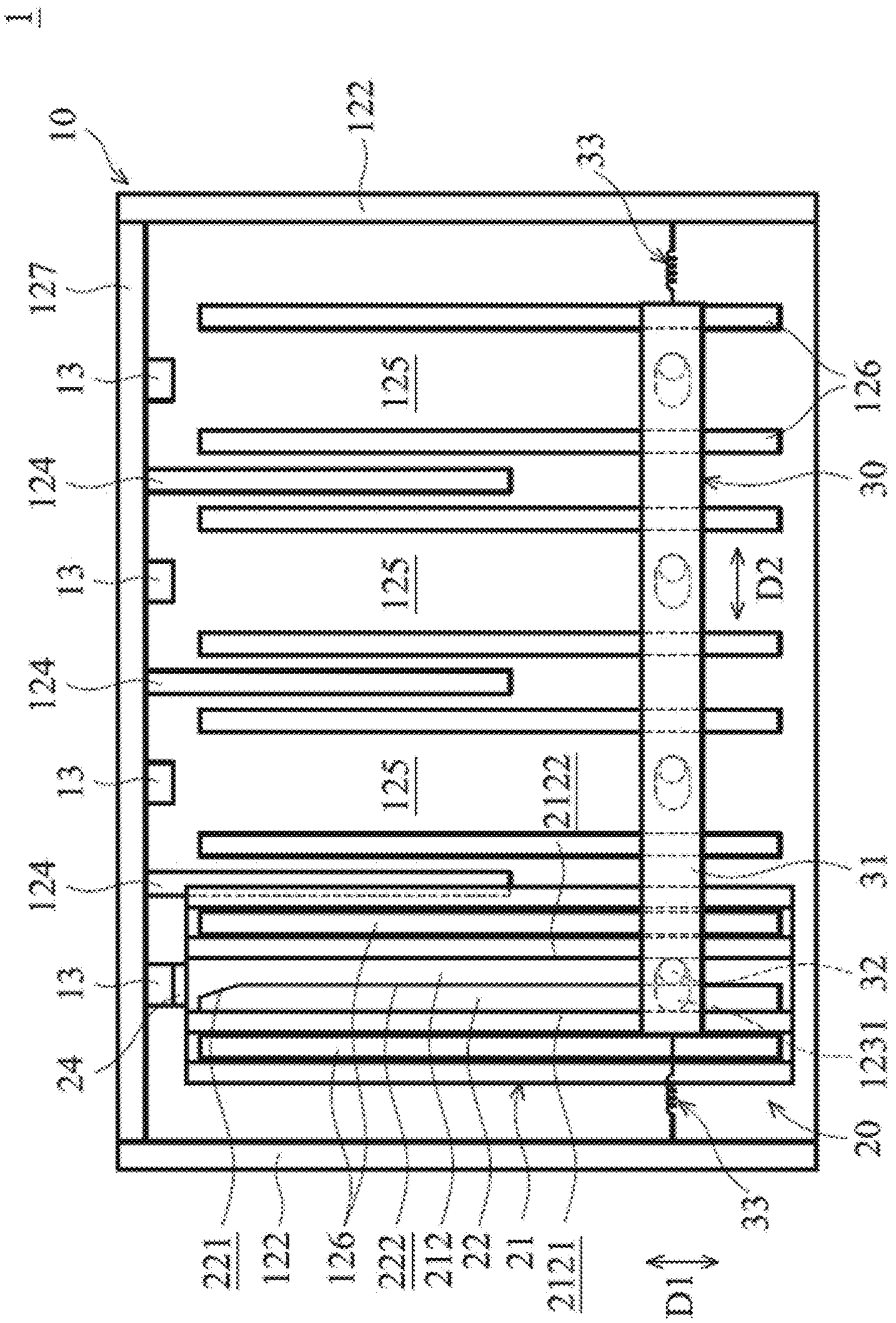

1
10
122
33
127
13
125
126
124
30
D2
2122
31
24
32
1231
20
221
122
126
222
212
22
21
2121
33
D1

FIG. 6B

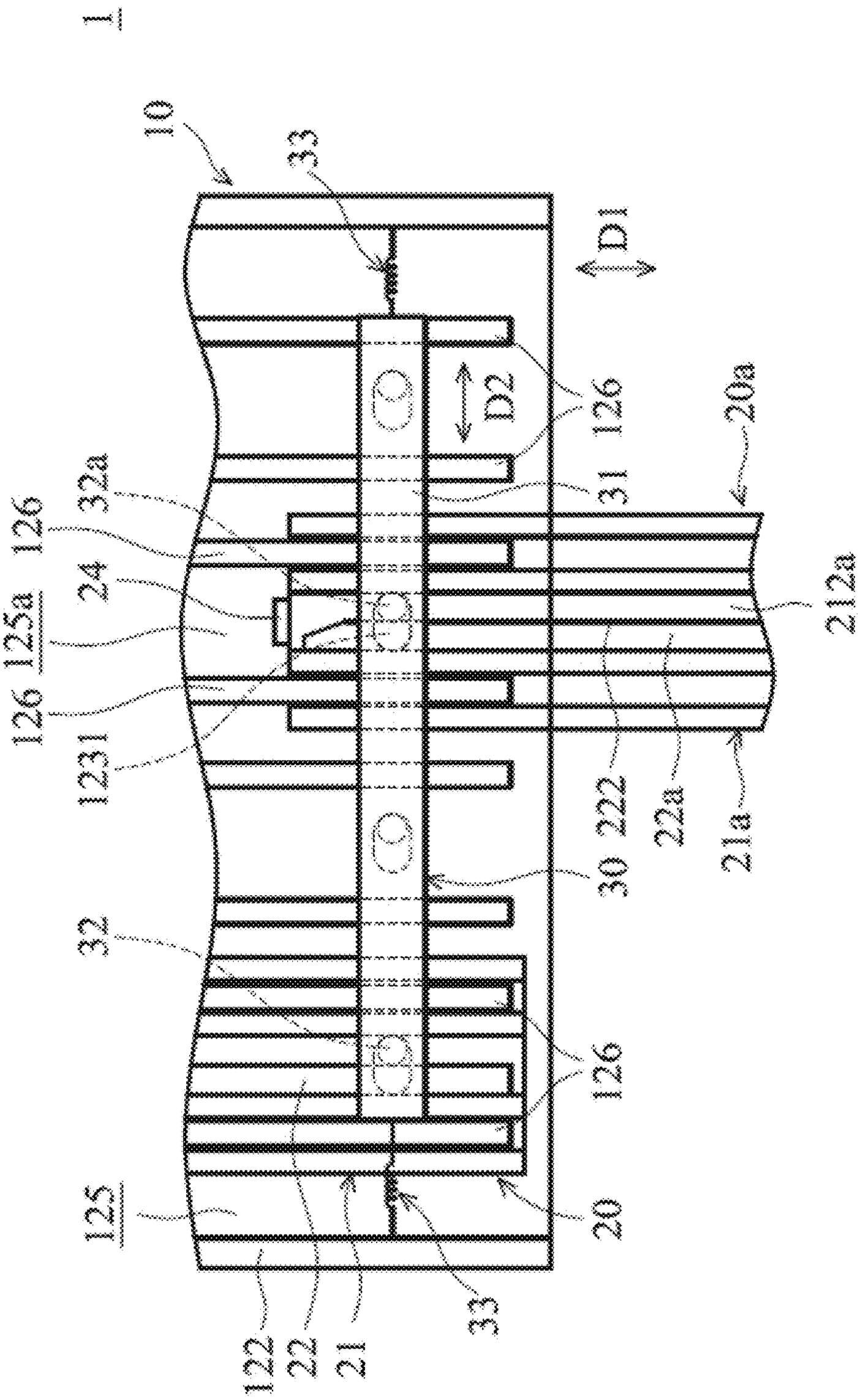

1
10
33
D1
D2
126
31
20a
212a
32a
126
24
125a
126
1231
32
30
222
22a
21a
126
125
20
122
22
21
33

FIG. 6C

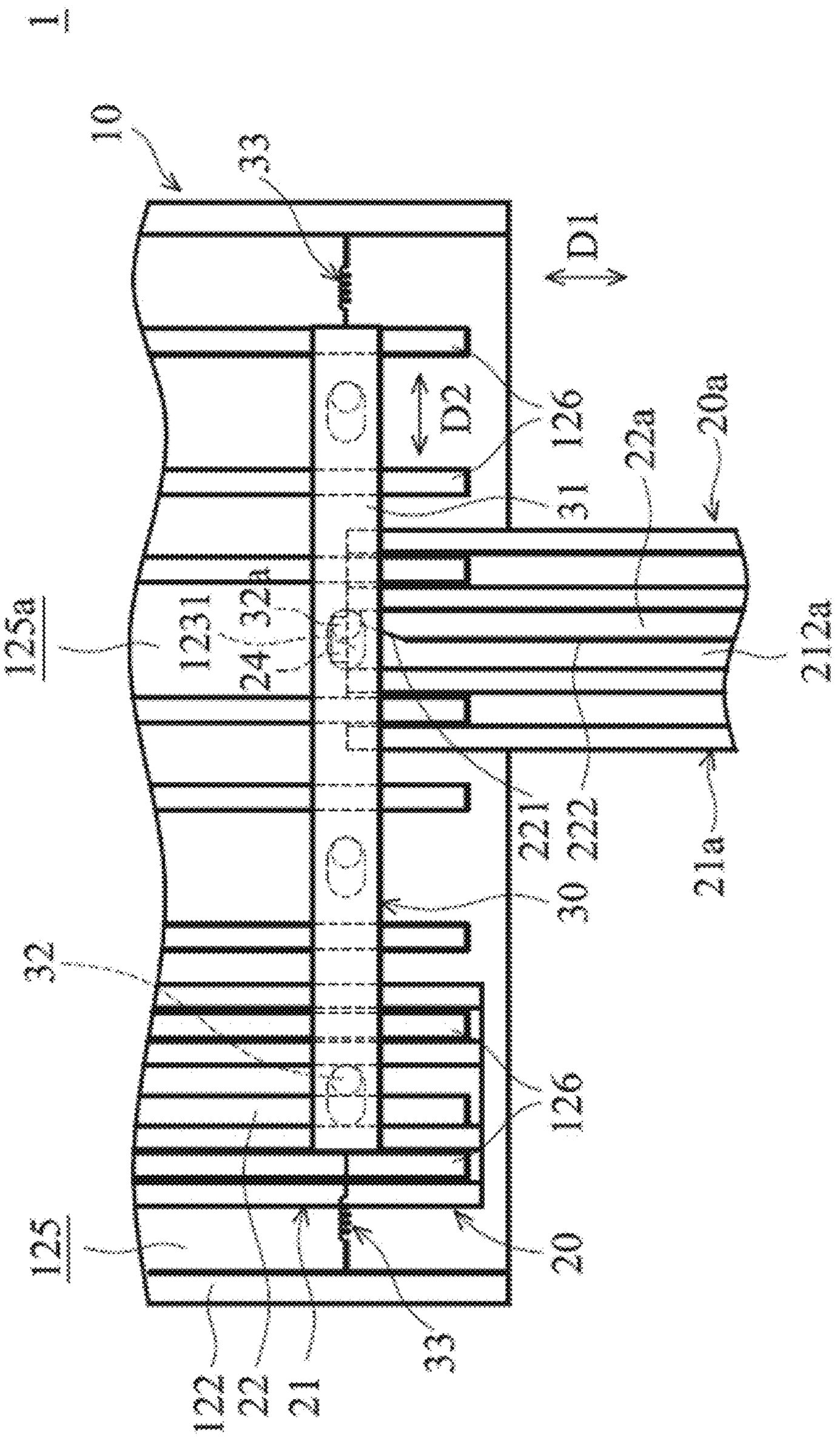

1-1
10
33
D1
D2
126
31
22a
20a
125a
1231
24
32a
212a
221
30
222
21a
32
126
125
20
122
22
21
33

FIG. 6D

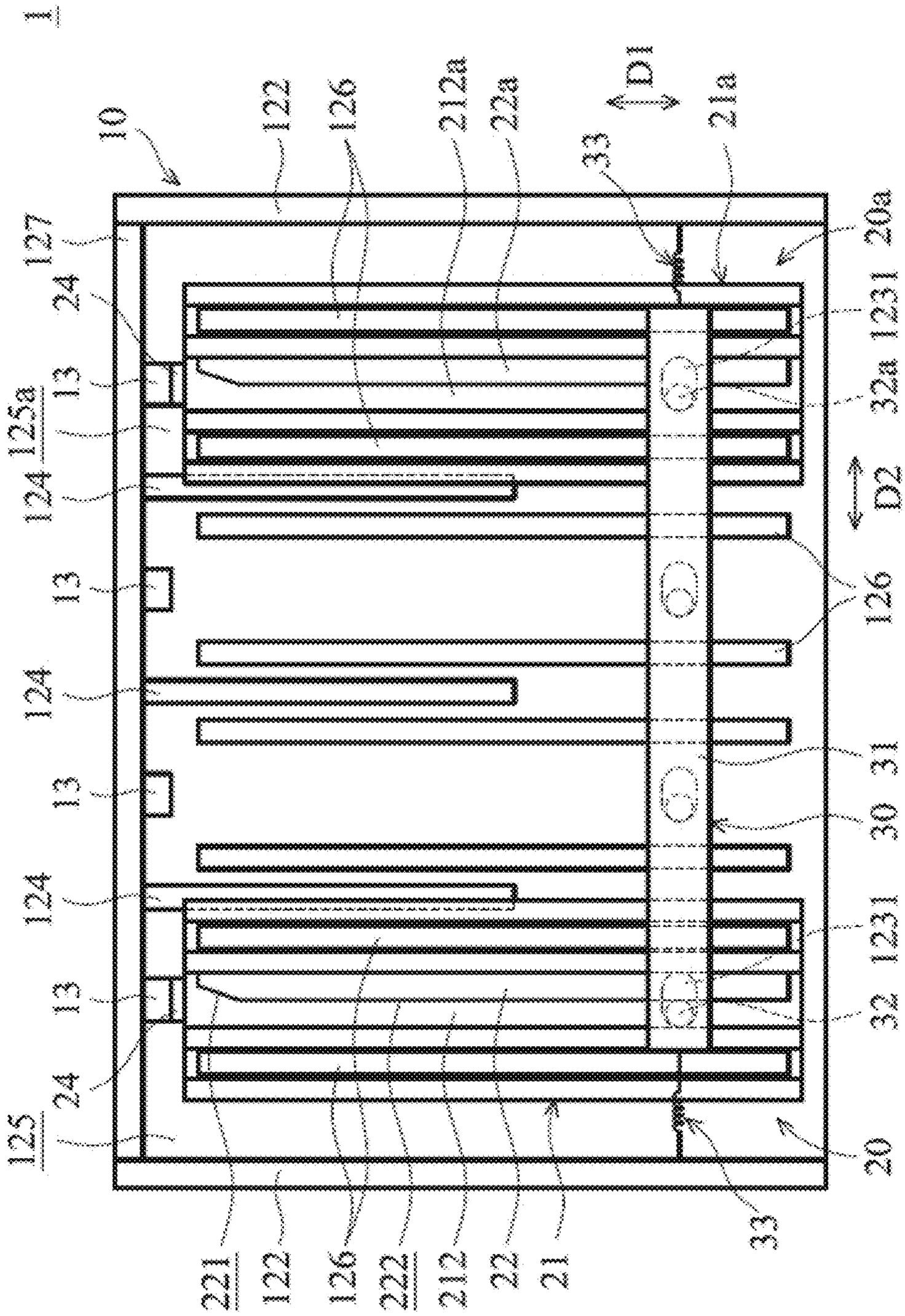

1
10
122
126
212a
22a
D1
33
21a
20a
127
24
124
125a
13
125
1231
32a
D2
126
31
30
32
20
221
122
126
222
212
22
21

FIG. 7A

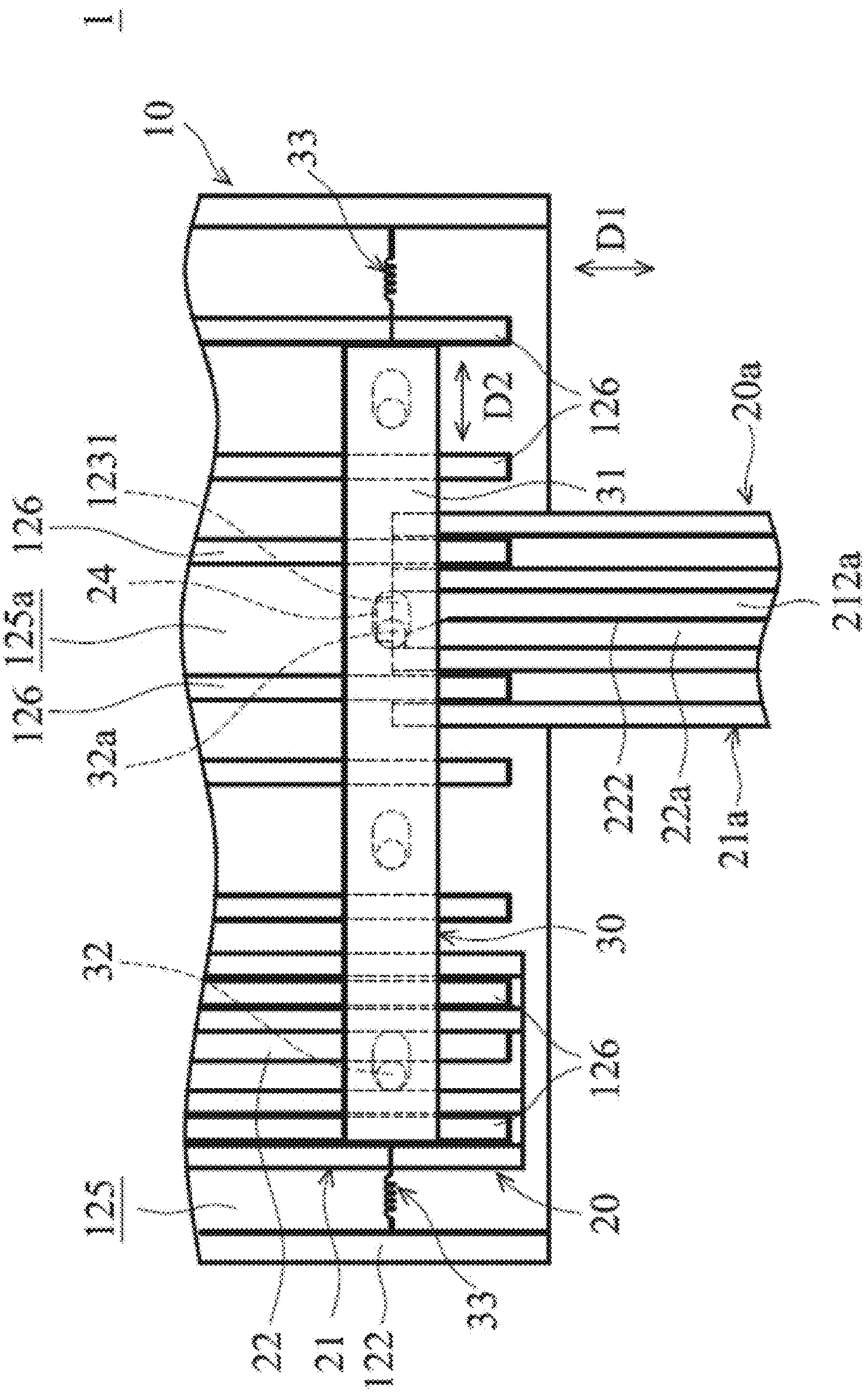

1
10
33
D1
D2
126
1231
126
125a
24
126
32a
222
22a
21a
212a
20a
31
30
32
126
125
22
21
122
33
20

FIG. 7B

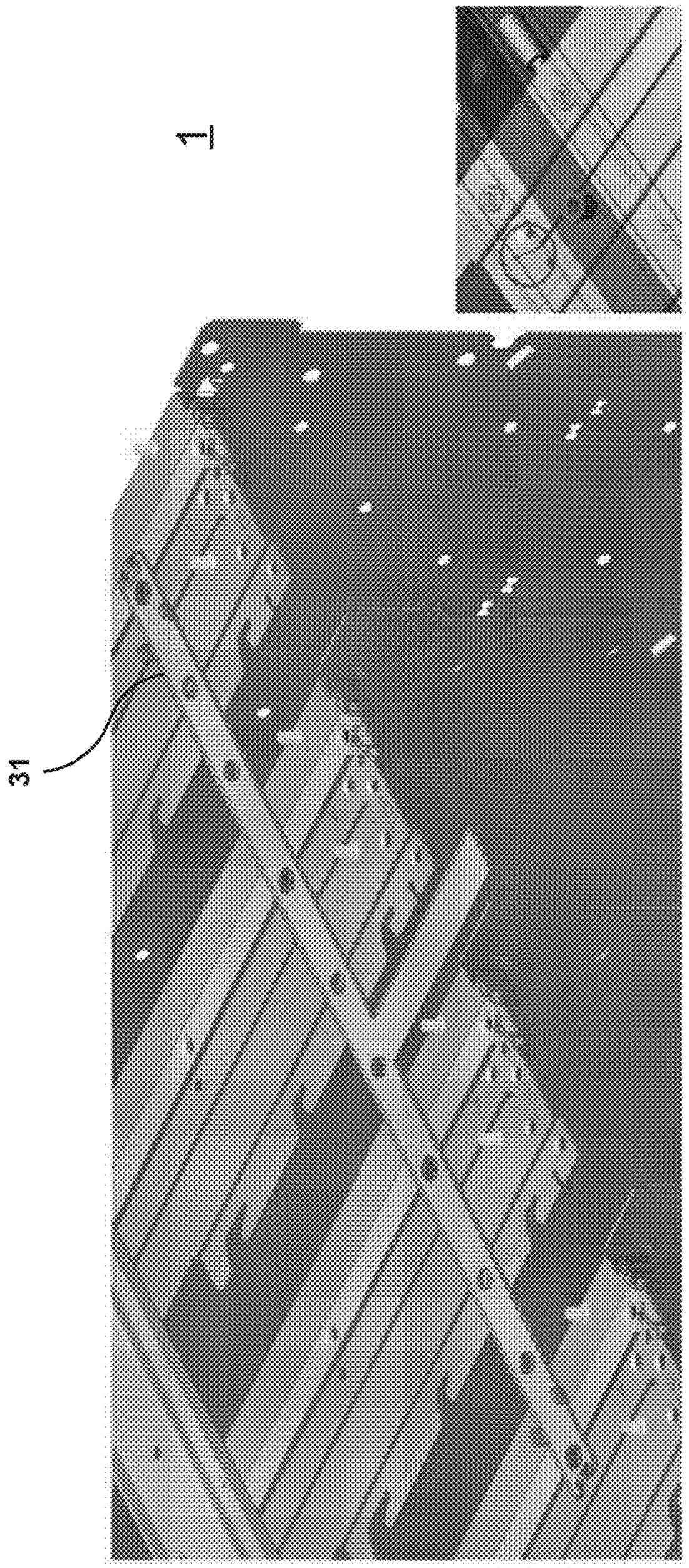


FIG. 7C

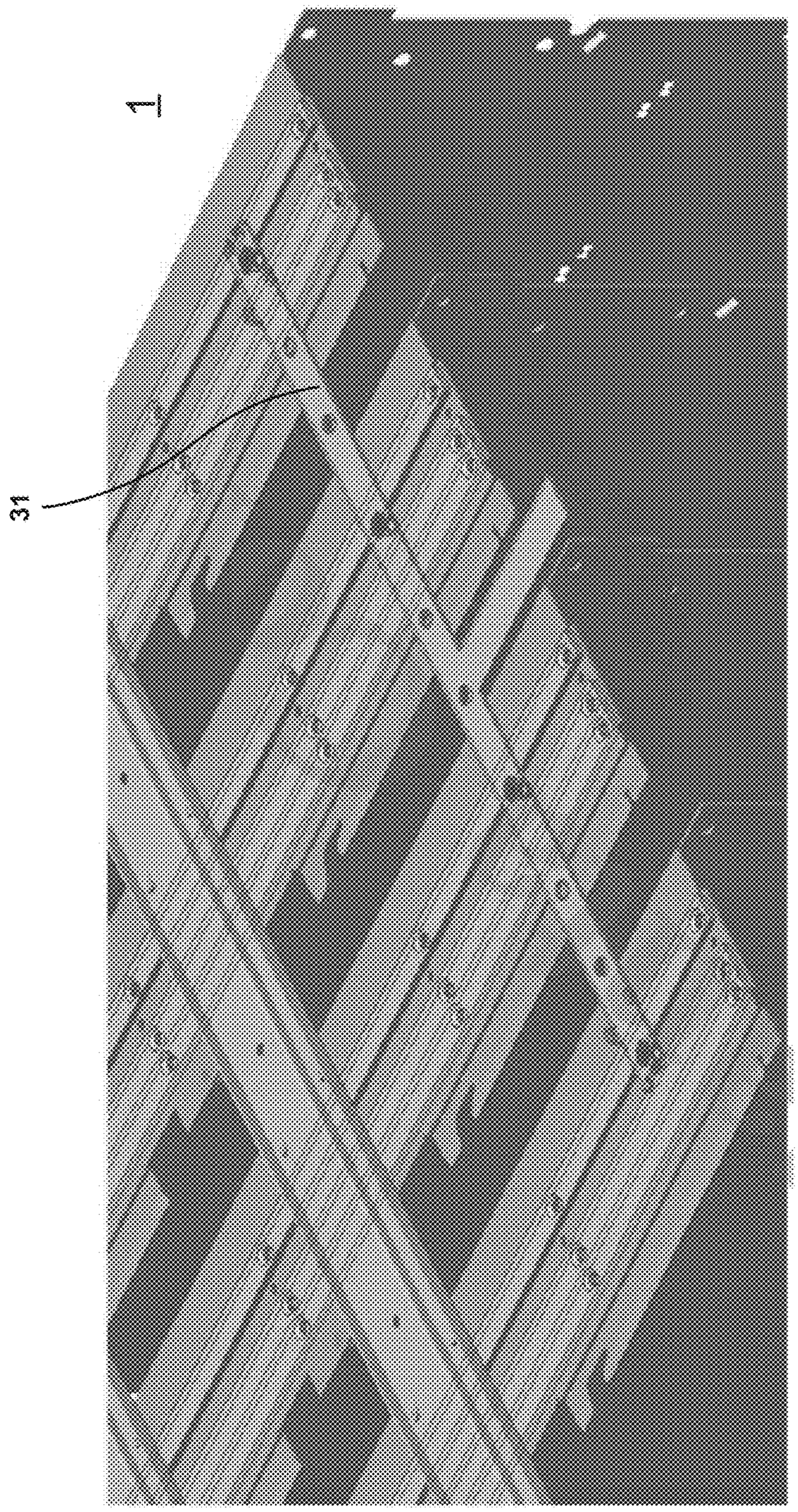


FIG. 7D

MODULARIZED SERVER

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority to Taiwan Application Number 105127209, entitled, "MODULARIZED SERVER" and filed on Aug. 25, 2016, the disclosure of which is incorporated herein by reference in its entirety.

FIELD OF THE TECHNOLOGY

The present technology mainly relates to a server, and more particularly to a modularized server.

BACKGROUND

To facilitate rapid repairing and updating of a server such as a network server or database, a modularization function is designed in the server. When the server fails, the repairing of the server is accelerated by merely replacing the damaged module in the server. When the server is to be upgraded, the upgrading can be done rapidly by replacing the related module in the server.

Accordingly, to save the fabrication cost of a modularized server, each module is designed with the same casing, and modules of different designs may be inserted into the same server. However, when the modules of different designs are inserted into a server, damages may be caused to the server.

SUMMARY OF THE PRESENT TECHNOLOGY

To avoid the defects in the prior art, the present technology provides a modularized server, to prevent a user from inserting, into the server, an electronic device that does not meet the specification of the server, thereby avoiding damages to the server.

The present technology provides a modularized server, including: a rack, a switching mechanism, and a first removable electronic device. The rack includes a first slot and a second slot. The switching mechanism includes a switching element, a first stopping block, a second stopping block, an elastic element, a first casing, and a first limiting element. The switching element is movably disposed on the rack. The first stopping block is disposed on the switching element, and extends into the first slot.

The second stopping block is disposed on the switching element, and extends into the second slot. The elastic element is disposed on the rack and the switching element, and is used for providing an elastic force to maintain the switching element, the first stopping block, and the second stopping block at an initial position. The first removable electronic device is inserted into the first slot, and includes a first casing and a first limiting element disposed on the first casing.

When the first removable electronic device is inserted into the first slot and the first limiting element is disposed at a first marked position on the first casing, the first limiting element is operable to push the first stopping block, such that the switching element, the first stopping block, and the second stopping block move to a first switching position.

When the first removable electronic device is inserted into the first slot and the first limiting element is disposed at a second marked position on the first casing, the first limiting element is operable to push the first stopping block, such that the switching element, the first stopping block, and the second stopping block move to a second switching position.

In some examples, the modularized server further includes a second removable electronic device. The second removable electronic device includes a second casing and a second limiting element disposed on the second casing. When the second stopping block is located at the first switching position and the second limiting element is located at a first marked position on the second casing, the switching mechanism is operable to allow the second removable electronic device to be inserted into the second slot. When the second stopping block is located at the first switching position and the second limiting element is located at a second marked position on the second casing, the second stopping block is operable to stop the second removable electronic device from being inserted into the second slot.

When the second stopping block is located at the second switching position and the second limiting element is located at a second marked position on the second casing, the switching mechanism is operable to allow the second removable electronic device to be inserted into the second slot. When the second stopping block is located at the second switching position and the second limiting element is located at a first marked position on the second casing, the second stopping block is operable to stop the second removable electronic device from being inserted into the second slot.

In some examples, the structure and size of the first casing are identical to or substantially identical to the structure of the second casing, and the structure and size of the first limiting element are identical to or substantially similar to that of the second limiting element.

In some examples, when the first removable electronic device is detached from the first slot, the elastic element is operable to restore the switching element, the first stopping block, and the second stopping block to an initial position.

In some examples, the first casing includes a sliding groove, and the rack includes a sliding rail extending in a guide direction. When the first removable electronic device is inserted into the first slot, the sliding rail is located in the sliding groove, and is operable to guide the first removable electronic device to move in the guide direction.

In some examples, the first casing includes an accommodating groove extending in a guide direction, and the first limiting element is located in the accommodating groove and extends in the guide direction. When the first removable electronic device is inserted into the first slot, the first casing is operable to move in the guide direction, and the first stopping block is located in the accommodating groove.

In some examples, the first limiting element includes an inclined surface located at one end of the first limiting element and a side surface connected to the inclined surface, the inclined surface tilts relative to the side surface, and the side surface extends in a guide direction. When the first removable electronic device is inserted into the first slot, the inclined surface is operable to push the first stopping block to move from the initial position to the first switching position, and the first stopping block is operable to slide along the inclined surface to the side surface.

In some examples, the rack further includes a top plate, and the top plate includes a first through-hole and a second through-hole, the switching element is located on the top plate, the first stopping block is operable to pass through the first through-hole to reach the first slot, and the second stopping block is operable to pass through the second through-hole to reach the second slot.

In some examples, the elastic element is a spring, and two ends of the elastic element are respectively fixed on the top plate and the switching element.

In some examples, the rack includes a spacer plate disposed between the first slot and the second slot.

In some examples, the modularized server further includes a main electrical connector located in the first slot, the first removable electronic device further includes an electrical connector disposed on the first casing, and when the first removable electronic device is inserted into the first slot, the electrical connector is operable to be inserted into the main electrical connector.

In view of the above, according to the modularized server of the present technology, the switching mechanism is used to stop removable electronic devices of different specifications from being mounted in the modularized server, thereby avoiding damages to the modularized server due to certain wrong operations by a user.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a three-dimensional view of a modularized server according some examples of the present technology.

FIG. **2** illustrates a front view of a host according some examples of the present technology.

FIG. **3** illustrates a top view of the host according some examples of the present technology.

FIG. **4** illustrates a three-dimensional view of a removable electronic device according to the present technology.

FIG. **5** illustrates an exploded view of the removable electronic device according some examples of the present technology.

FIG. **6**A illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **6**B illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **6**C illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **6**D illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **7**A illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **7**B illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **7**C illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

FIG. **7**D illustrates a schematic view of the modularized server at a middle stage of a mounting step according some examples of the present technology.

DETAILED DESCRIPTION OF THE PRESENT TECHNOLOGY

Different examples or examples are provided in the following description to implement different features of the present technology. The elements and arrangements described in the specific examples below are merely used as examples to briefly illustrate the present technology, instead of limiting the present technology. For example, the description of a structure with a first feature being on or above a second feature includes the circumstances that the first feature and the second feature are in direct contact, or another feature is disposed between the first feature and the second feature such that the first feature and the second feature are not in direct contact.

Besides, the same reference numerals and/or characters are used in the different examples of this specification, which is for simplified and explicit description only and does not indicate that different examples and settings are necessarily associated.

The terms like "first" and "second" in this specification are merely for clear explanation, and do not correspond to or limit the scope of the present technology. Moreover, the terms like "first feature" and "second feature" do not restrict that the first feature and the second feature are identical or different features.

The related spatial terms, for example, "above" or "below", are merely used to briefly describe the relationship of an element or a feature relative to another element or feature in the figures. In addition to the directions described in the figures, devices may be used or operated in different directions.

The shape, size, thickness, and inclined angle in the figures may not be depicted in proportion or may be simplified for clear description, and are provided for illustration only.

FIG. **1** illustrates a three-dimensional view of a modularized server **1** according to the present technology. The modularized server **1** may be a network server, a database, or a computer. The modularized server **1** includes a host **10** and multiple removable electronic devices **20**. The removable electronic devices **20** are inserted into the host **10**.

The removable electronic device **20** may be a network device, a storage device, or a processing device. The network device may include electronic elements such as a network processing chip, a memory, and a circuit board, for processing network data. The storage device may include a hard disk drive for storing, collecting, and reading data. The processing device may include electronic elements such as a central processing chip, a memory, and a main circuit board, for performing various operations.

For example, in this example, the modularized server **1** may be a network server, and the removable electronic devices **20** may each be a network device.

When one of the removable electronic devices **20** fails, the repairing of the modularized server **1** is accelerated by merely replacing the damaged removable electronic device **20**. When the modularized server **1** is to be upgraded, the upgrading can be done rapidly by replacing the removable electronic devices **20**.

FIG. **2** illustrates a front view of the host **10** according to the present technology, FIG. **3** illustrates a top view of the host **10** according to the present technology, and a housing **11** is not depicted in FIG. **2**. The host **10** includes a housing **11**, a rack **12**, and multiple main electrical connectors **13**. The housing **11** may be a metal casing, for protecting electronic elements in the housing **11**. The rack **12** is disposed in the housing **11**, and the removable electronic devices **20** are mounted on the rack **12**.

In this example, the rack **12** includes a bottom plate **121**, multiple side walls **122**, a top plate **123**, multiple spacer plates **124**, a mounting plate **127**, and multiple sliding rails **126**. The bottom plate **121** and the top plate **123** are spaced from each other, and the bottom plate **121** and the top plate **123** may be substantially in parallel. The side walls **122** are connected to the bottom plate **121** and the side walls **122**.

Every two side walls **122** are spaced from each other, and may be substantially in parallel.

In this example, the spacer plates **124** may be fixedly or detachably disposed on the bottom plate **121**. The spacer plates **124** are respectively located between every two side walls **122**, and may be substantially in parallel with the side walls **122**. As shown in FIG. **2** and FIG. **3**, multiple slots **125** may be formed between the spacer plates **124** and the side walls **122** and between the spacer plates **124**. In other words, the spacer plates **124** are respectively located between every two adjacent slots **125**. The spacer plates **124** may be used to restrict the positions of the removable electronic devices **20** inserted in the rack **12**.

The sliding rails **126** are disposed on the top plate **123** and the bottom plate **121**. The sliding rails **126** may be of a strip-shaped structure, and extend in a guide direction D**1** (as shown in FIG. **3**). Each slot **125** has more than one sliding rail **126** therein. In this example, each slot **125** has four sliding rails **126**, where two of the sliding rails **126** are disposed on the top plate **123**, and the other two are disposed on the bottom plate **121**.

The mounting plate **127** is located between the bottom plate **121** and the top plate **123**, and may be substantially perpendicular to the bottom plate **121** and the top plate **123**. In some examples, the mounting plate **127** may be mounted on the side walls **122**, to increase the stability of the mounting plate **127**.

The main electrical connectors **13** may be disposed on the mounting plate **127**. In some examples, the main electrical connectors **13** may pass through the mounting plate **127**. In some examples, the mounting plate **127** may be a circuit board, and the main electrical connectors **13** are electrically connected to the mounting plate **127**.

In this example, each slot **125** may have one main electrical connector **13**, and the main electrical connector **13** in each slot **125** may be disposed at the same position and have the same specification and size. In some examples, each slot **125** may have multiple main electrical connectors **13**. The main electrical connectors **13** in each slot **125** may have different specifications and sizes.

As shown in FIG. **2** and FIG. **3**, the modularized server **1** further includes a switching mechanism **30**. The switching mechanism **30** is disposed on the rack **12**. The switching mechanism **30** includes a switching element **31**, multiple stopping blocks **32**, and an elastic element **33**. The switching element **31** is movably disposed on the top plate **123** of the rack **12**. The switching element **31** may be of a strip-shaped plate structure, and extends in a switching direction D**2**. The switching direction D**2** may be perpendicular to or substantially perpendicular to the guide direction D**1**.

The stopping blocks **32** are disposed on the switching element **31**. In this example, the stopping blocks **32** are arranged on the switching element **31** at intervals, and the stopping blocks **32** may be directly fixed on the switching element **31**. The top plate **123** has multiple through-holes **1231**. The stopping blocks **32** respectively pass through the through-holes **1231**, and extend into the slots **125**. In this example, the stopping blocks **32** may extend perpendicular to the switching direction D**2**.

The elastic element **33** is disposed on the rack **12** and the switching element **31**. In some examples, the elastic element **33** is a spring. Two ends of each elastic element **33** are respectively fixed on the top plate **123** and the switching element **31**, and two elastic elements **33** are respectively fixed on two ends of the switching element **31**. Therefore, the two elastic elements **33** may provide an elastic force to maintain the switching element **31** and the stopping blocks **32** at an initial position shown in FIG. **2** and FIG. **3**.

As shown in FIG. **2** and FIG. **3**, in the switching direction D**2**, each stopping block **32** may be located at the center of the corresponding through-hole **1231**, and the through-hole **1231** extends in the switching direction D**2**. Therefore, the through-holes **1231** may restrict the switching element **31** and the stopping blocks **32** to move in the switching direction D**2**.

FIG. **4** illustrates a three-dimensional view of the removable electronic device **20** according to the present technology. FIG. **5** illustrates an exploded view of the removable electronic device **20** according to the present technology. The removable electronic device **20** is inserted into the slot **125**. The removable electronic device **20** includes a casing **21**, a limiting element **22**, multiple electronic elements **23**, and an electrical connector **24**.

The casing **21** has multiple sliding grooves **211** and an accommodating groove **212**. The sliding grooves **211** are located on the top and bottom of the casing **21**. In this example, two sliding grooves **211** are located on the top of the casing **21**, and two sliding grooves **211** are located on the bottom of the casing **21**. The accommodating groove **212** is located between the two sliding grooves **211** on the top of the casing **21**. The sliding grooves **211** and the accommodating groove **212** may extend in the guide direction D**1**. In other words, the sliding grooves **211** and the accommodating groove **212** are in parallel to each other.

The limiting element **22** is disposed on the casing **21**. In this example, the limiting element **22** is located in the accommodating groove **212**. The limiting element **22** may be a strip-shaped plate structure, and extends in the guide direction D**1**. The width of the limiting element **22** is larger than that of the accommodating groove **212**. In this example, the width of the limiting element **22** is approximately twice that of the accommodating groove **212**. The width of the limiting element **22** and the width of the accommodating groove **212** are measured in a direction perpendicular to the guide direction D**1**.

In some examples, the limiting element **22** is detachably disposed on the casing **21**. For example, the limiting element **22** may be disposed on the casing **21** in a buckled or locked manner. Besides, the limiting element **22** is selectively disposed at a first marked position or a second marked position in the accommodating groove **212**. As shown in FIG. **4**, the limiting element **22** is located at a first marked position in the accommodating groove **212**.

The electronic elements **23** are disposed in the casing **21**. The electrical connector **24** is disposed on the rear side of the casing **21**, and is electrically connected to the electronic elements **23**. In some examples, the removable electronic device **20** may include multiple electrical connectors **24**. The number and position of the electrical connector **24** correspond to the number and position of the main electrical connector **13** in each slot **125**.

FIG. **6**A to FIG. **6**D illustrate schematic views of the modularized server **1** at a middle stage of a mounting step according to the present technology. As shown in FIG. **6**A, the removable electronic device **20** is to be inserted into the slot **125** in a guide direction D**1**.

The limiting element **22** has an inclined surface **221** and a side surface **222**. The inclined surface **221** is located at one end of the limiting element **22**, and tilts relative to the side surface **222**. When the removable electronic device **20** is inserted into the slot **125** in the guide direction D**1**, the end of the limiting element **22** where the inclined surface **221** is located faces the mounting plate **127** or the slot **125**.

The side surface **222** is connected to the inclined surface **221**, and extends in the guide direction D**1**. As shown in FIG. **6**A, the limiting element **22** is located at the first marked position in the accommodating groove **212** at the moment. The first marked position is located at the left half of the accommodating groove **212** in FIG. **6**A. The limiting element **22** contacts or is adjacent to a first side wall **2121** of the accommodating groove **212**, and is away from a second side wall **2122** of the accommodating groove **212**.

The limiting element **22** is detachably disposed at the second marked position in the accommodating groove **212**. When the limiting element **22** is disposed at the second marked position, the limiting element **22** turns by 180°, that is, turns by 180° about a longitudinal axis AX**1** extending in the guide direction D**1**. In some examples, the longitudinal axis AX**1** is located at the center of the accommodating groove **212** in the longitudinal direction. The second marked position is located at the right half of the accommodating groove **212** in FIG. **6**A. The limiting element **22** contacts or is adjacent to the second side wall **2122** of the accommodating groove **212**, and is away from the first side wall **2121** of the accommodating groove **212**.

In some examples, the limiting element **22** at the first marked position is located between the longitudinal axis AX**1** and the first side wall **2121**. The limiting element **22** at the second marked position is located between the longitudinal axis AX**1** and the second side wall **2122**.

In FIG. **6**A, since the switching element **31** does not push the stopping block **32**, the switching mechanism **30** is located at the initial position. In some examples, the stopping block **32** is located on the longitudinal axis AX**1**.

In FIG. **6**B, when the removable electronic device **20** continuously moves in the guide direction D**1**, the inclined surface **221** pushes the stopping block **32** to move from the initial position to the first switching position, and the stopping block **32** slides along the inclined surface **221** to the side surface **222**.

As shown in FIG. **6**B, the diameter of the stopping block **32** is approximately equal to the width of the limiting element **22**, and is approximately half of the width of the accommodating groove **212**. The above diameter and width are measured in the switching direction D**2**. Therefore, the stopping block **32** may move to a position between the second side wall **2122** of the accommodating groove **212** and the limiting element **22**.

Besides, when the removable electronic device **20** is inserted into the slot **125**, the sliding rail **126** is located in the sliding groove **211**, and restricts the removable electronic device **20** to move in the guide direction D**1**. The casing **21** moves in the guide direction D**1**, and the stopping block **32** is located in the accommodating groove **212**. When the removable electronic device **20** is inserted into the slot **125**, the electrical connector **24** is inserted into the main electrical connector **13**.

In this example, since the stopping block **32** moves to the first switching position, the switching element **31** and the remaining stopping blocks **32** move to the second switching position.

As shown in FIG. **6**C, another removable electronic device **20***a* is inserted into the slot **125***a*. The removable electronic device **20***a* includes a casing **21***a* and a limiting element **22***a*. The limiting element **22***a* is disposed on the casing **21***a*. The structure and size of the casing **21** are identical to or substantially identical to the structure of the casing **21***a*, and the structure and size of the limiting element **22** are identical to or substantially identical to that of the limiting element **22***a*.

As shown in FIG. **6**C, the stopping block **32***a* is located at the first switching position, the limiting element **22***a* is located at a first marked position of the casing **21***a*, and the switching mechanism **30** allows the removable electronic device **20***a* to be inserted into the slot **125***a*.

As shown in FIG. **6**D, the stopping block **32***a* is located at the first switching position, the limiting element **22***a* is located at a second marked position on the casing **21***a*, and the stopping block **32***a* stops the removable electronic device **20***a* from being inserted into the slot **125***a*.

By inserting the removable electronic device **20** into the slot **125**, the switching mechanism **30** moves to the first switching position. Therefore, the switching mechanism **30** only allows the removable electronic device **20***a* having the limiting element **22***a* located at the first marked position to be inserted into the slot **125***a*. When the limiting element **22***a* of the removable electronic device **20***a* is located at the second marked position different from the first marked position, the switching mechanism **30** stops the removable electronic device **20***a* from being inserted into the slot **125***a*, to prevent the removable electronic device **20***a* that does not meet the specification from being inserted into the slot **125***a*. Therefore, the modularized server **1** has a foolproof function, to avoid damages to the modularized server **1** due to misoperation of a user.

Moreover, when the removable electronic device **20** is detached from the slot **125**, the elastic element **33** restores the switching element **31** and the stopping block **32** to the initial position (as shown in FIG. **6**A).

FIG. **7**A and FIG. **7**B illustrate schematic views of the modularized server **1** at a middle stage of a mounting step according to the present technology. As shown in FIG. **7**A, the removable electronic device **20** is inserted into the slot **125**, and the limiting element **22** is disposed at the second marked position on the casing **21**. The second marked position is located at the right half of the accommodating groove **212** in FIG. **7**A. The limiting element **22** pushes the stopping block **32**, such that the switching element **31**, the stopping block **32**, and the stopping block **32***a* move to a second switching position.

The limiting element **22***a* of the removable electronic device **20***a* is located at the second marked position on the casing **21***a*, and the switching mechanism **30** allows the removable electronic device **20***a* to be inserted into the slot **125***a*.

As shown in FIG. **7**B, the removable electronic device **20** is inserted into the slot **125**, and the limiting element **22** is disposed at the second marked position on the casing **21**. The limiting element **22***a* of the removable electronic device **20***a* is located at the first marked position on the casing **21***a*, and the switching mechanism **30** stops the removable electronic device **20***a* from being inserted into the slot **125***a*.

By inserting the removable electronic device **20** into the slot **125**, the switching mechanism **30** moves to the second switching position. Therefore, the switching mechanism **30** only allows the removable electronic device **20***a* having the limiting element **22***a* located at the second marked position to be inserted into the slot **125***a*. When the limiting element **22***a* of the removable electronic device **20***a* is located at the first marked position different from the second marked position, the switching mechanism **30** stops the removable electronic device **20***a* from being inserted into the slot **125***a*, to prevent the removable electronic device **20***a* that does not meet the specification from being inserted into the slot **125***a*. Therefore, the modularized server **1** has a foolproof function, to avoid damages to the modularized server **1** due to wrong operation by a user.

In view of the above, according to the modularized server of the present technology, the switching mechanism is used to stop removable electronic devices of different specifications from being mounted in the modularized server, thereby avoiding damages to the modularized server due to wrong operation by a user.

FIG. **7**C and FIG. **7**D illustrate schematic views of exemplary modularized server **1** at a middle stage of a mounting step according to the present technology. In FIG. **7**C, the switching element **31** can be controlled manually without the elastic element **33** illustrated in FIGS. **7**A and **7**B. In FIG. **7**D, the switching element **31** can be used to switch between two or more types of removable electronic device **20**. For example, the switching element **31** can allow types A and B removable electronic devices **20** to be inserted when a limiting element is disposed at a first position, and allow types C and D removable electronic devices **20** to be inserted when the limiting element is disposed at a second position.

Although the present technology is illustrated above through the examples, these examples are merely used as examples for reference instead of limiting the scope of the present technology. Persons skilled in the art can make some modifications and variations without departing from the spirit and scope of the present technology. Therefore, the above examples are not intended to limit the scope of the present technology, and the protection scope of the present technology is defined by the appended claims.

What is claimed is:

1. A modularized server, comprising:

a rack, comprising a bottom plate, side walls, a top plate, a first slot and a second slot;

a switching mechanism, comprising:

only one switching element, disposed on the rack and being movable in a switching direction;

a first stopping block, disposed on the only one switching element, and extending into the first slot;

a second stopping block, disposed on the only one switching element, and extending into the second slot; and

two elastic elements, disposed on the rack and fixed on two ends of the only one switching element, a first end of each of the two elastic elements fixed on the top plate and a second end of the two elastic elements fixed to the only one switching element near the side walls, for providing an elastic force to maintain the only one switching element, the first stopping block, and the second stopping block at an initial position;

wherein the first slot is operable to receive a first removable electronic device, the first removable electronic device comprising:

a first casing, the first casing including a sliding groove, and the rack including a sliding rail extending in a guide direction; and

a first limiting element, disposed on the first casing;

wherein, when the first removable electronic device is inserted into the first slot in the guide direction and the first limiting element is disposed at a first marked position on the first casing, insertion of the first removable electronic device causes the first limiting element to push the first stopping block, such that the only one switching element, the first stopping block, and the second stopping block move to a first switching position, wherein the switching direction is substantially perpendicular to the guide direction;

wherein, when the first removable electronic device is inserted into the first slot and the first limiting element is disposed at a second marked position on the first casing, insertion of the first removable electronic device causes the first limiting element to push the first stopping block, such that the only one switching element, the first stopping block, and the second stopping block move to a second switching position,

wherein the first switching position and the second switching position are different.

2. The modularized server according to claim **1**, wherein the second slot is operable to receive a second removable electronic device, the second removable electronic device comprising:

a second casing; and

a second limiting element, disposed on the second casing,

wherein, when the second stopping block is located at the first switching position and the second limiting element is located at a first marked position on the second casing, the switching mechanism is operable to allow the second removable electronic device to be inserted into the second slot,

wherein, when the second stopping block is located at the first switching position and the second limiting element is located at a second marked position on the second casing, the second stopping block is operable to stop the second removable electronic device from being inserted into the second slot.

3. The modularized server according to claim **2**, wherein, when the second stopping block is located at the second switching position and the second limiting element is located at the second marked position on the second casing, the switching mechanism is operable to allow the second removable electronic device to be inserted into the second slot,

wherein, when the second stopping block is located at the second switching position and the second limiting element is located at a first marked position on the second casing, the second stopping block is operable to stop the second removable electronic device from being inserted into the second slot.

4. The modularized server according to claim **2**, wherein a structure and size of the first casing is substantially similar to a structure and size of the second casing, and a structure and size of the first limiting element is substantially similar to a structure and size of the second limiting element.

5. The modularized server according to claim **1**, wherein, when the first removable electronic device is detached from the first slot, the two elastic elements are operable to restore each of the only one switching element, the first stopping block, and the second stopping block to an initial position.

6. The modularized server according to claim **1**, wherein, when the first removable electronic device is inserted into the first slot, the sliding rail is located in the sliding groove and is operable to guide the first removable electronic device to move in the guide direction.

7. The modularized server according to claim **1**, wherein the first casing comprises an accommodating groove extending in the guide direction, wherein the first limiting element is located in the accommodating groove and extends in the guide direction, and wherein, when the first removable electronic device is inserted into the first slot, the first casing is operable to move in the guide direction and the first stopping block is located in the accommodating groove.

8. The modularized server according to claim **1**, wherein the first limiting element comprises an inclined surface located at one end of the first limiting element and a side surface connected to the inclined surface, wherein the inclined surface tilts relative to the side surface, and wherein

the side surface extends in the guide direction; wherein, when the first removable electronic device is inserted into the first slot, the inclined surface is operable to push the first stopping block to move from an initial position of the first stopping block to the first switching position, and the first stopping block is operable to slide along the inclined surface to the side surface.

9. The modularized server according to claim **1**, wherein the rack further comprises a top plate, wherein the top plate comprises a first through-hole and a second through-hole, wherein the only one switching element is located on the top plate, wherein the first stopping block is operable to pass through the first through-hole to reach the first slot, and wherein the second stopping block is operable to pass through the second through-hole to reach the second slot.

10. The modularized server according to claim **1**, further comprising a main electrical connector located in the first slot, wherein the first removable electronic device further comprises an electrical connector disposed on the first casing, and wherein, when the first removable electronic device is inserted into the first slot, the electrical connector is operable to be inserted into the main electrical connector.

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